

30139



Amoco Oil Company

Post Office Box 417
Texas City, Texas 77560
713-486-4011

R. E. Evans
Refinery Manager

May 21, 1982

Mr. Allan M. Seils
Texas Dept. of Water Resources
Shipping Control and Effluent Reports Unit
Enforcement and Field Operations
P. O. Box 13087, Capitol Station
Austin, Texas 78711

JUN 21 1982

CR 1000

Dear Mr. Seils:

Subject: First Quarter 1982 RCRA Groundwater Monitoring Reports

Amoco Oil Company (Registration #30139) submits the first quarter 1982 RCRA groundwater monitoring reports for its landfarm facility (EPA # TX0072181381) located in Texas City, Texas. An area map (Figure 1) and sketch identifying the location of groundwater monitoring wells (Figure 2) are included.

Note that the landfarm facility contains other wells that are considered "observation wells" used primarily to define the water table (piezometric surface). At this time it is our best engineering judgement that a minimum of four upgradient wells (No.'s 4, 6, 11, and 13) and three downgradient wells (5, 8, and 12) are needed to properly monitor the landfarm groundwater. In our continuing landfarm assessment studies we may find that certain monitoring wells or clusters of monitoring wells may need to be paired for statistical elevation due to distinctly different underground stream systems. The basic concept of monitoring one upgradient well and three downgradient wells will not be sufficient for more complicated geohydrologic conditions.

We recognize that RCRA groundwater monitoring requires the calculation of means and variances for replicate samples (pH, conductivity, TOC, and TOR). However, reporting the data as the mean + variance, as this TDR report requires, is very misleading to a person reviewing the data. Since the variance is the square of the standard deviation it is not normally used

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May 21, 1982
Mr. Allan M. Seils
Page 2

with the mean to indicate the variability of the data. Instead the mean \pm standard deviation ($\sqrt{\text{variance}}$) should be used to indicate data variability. The TDNR report form example calculation for TOC did not illustrate the problem of reporting the means and variances since your calculated variance was near 1 (1.69) where the standard deviation (1.29) is nearly equal to the variance. Attachment A illustrates a few examples of our calculations for pH and conductivity where reporting mean \pm variance is very misleading. We suggest that you consider reporting data means and variance separately without the \pm sign.

Total organic halogen data (TOX) for the first quarter contained several values less than the detection limit of 0.03 mg/l. Our corporate statisticians and analytical personnel suggested we assume one-half the detection limit for calculating means and variances for data that contain less-than values. We will use this technique unless another data handling method is prescribed by TDNR.

Problems were encountered in measuring radium 226, gross alpha, and gross beta levels in groundwater samples due to their solids content. A letter will be sent to Jay Snow requesting a partial waiver from radiation analyses on sample containing high solids levels. Also gross beta analyses were reported in pCi/l instead of dosages in millirem/yr due to low values < 50 pCi/l. A letter from NUS Corporation, the lab performing the analyses, is included explaining their reason for reporting gross beta values in pCi/l.

If you have any questions concerning Amoco Oil Company's landfarm groundwater monitoring program or data in this report contact Mr. L. W. Crame, Environmental Control Consultant, at (713) 945-1157.

Very truly yours,

R. E. Evans

R. E. Evans

*Checked
5/21/82*

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Attachment A

Example: pH

Note: Std. Dev. = $\sqrt{\text{Variance}}$

Value 1 = 6.65
" 2 = 6.66
" 3 = 6.66
" 4 = 6.68

Mean = 6.66
Variance = 0.000119
Std. Dev. = 0.01

Mean + Variance \longrightarrow 6.66 + 0.000119
Mean + Std. Dev. \longrightarrow 6.66 + 0.01

Example: Conductivity

Value 1 = 15,400
" 2 = 15,300
" 3 = 15,200
" 4 = 16,000

Mean = 15,625
Variance = 81,875
Std. Dev. = 286

Mean + Variance \longrightarrow 15,625 + 81,875
Mean + Std. Dev. \longrightarrow 15,625 + 286

The mean and standard deviation together accurately define the data variability since the standard deviation is a well defined statistical point on a frequency distribution curve that is symmetrical about the mean. Reporting mean + variance is very misleading as it does not indicate variability directly or indicate the range of data.

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9000 GEMING AVENUE
CLEAR LAKE CITY
HALLIBURTON, TEXAS 77066
(713) 486 1610

C-30-00-5/82-103

May 12, 1982

Mr. Leonard Crane
Amoco Oil Company
P. O. Box 401
Texas City, Texas 77390

Dear Mr. Crane:

The following verbal comment was obtained by the Radiochemistry Laboratory from Mr. E.L. Whittaker of the EPA in Las Vegas, Nevada concerning gross beta analysis reporting units: "Report the beta activity in pCi/l until the activity level reaches 50 pCi/l. At that point and above the regional office should be notified."

In addition, a dose rate cannot be estimated in millirem without knowledge of what specific nuclide is in question. Therefore, it is not possible to report results in millirem from a "gross" beta analysis.

Sincerely,

A handwritten signature in cursive script that reads "Jerry W. Bright".

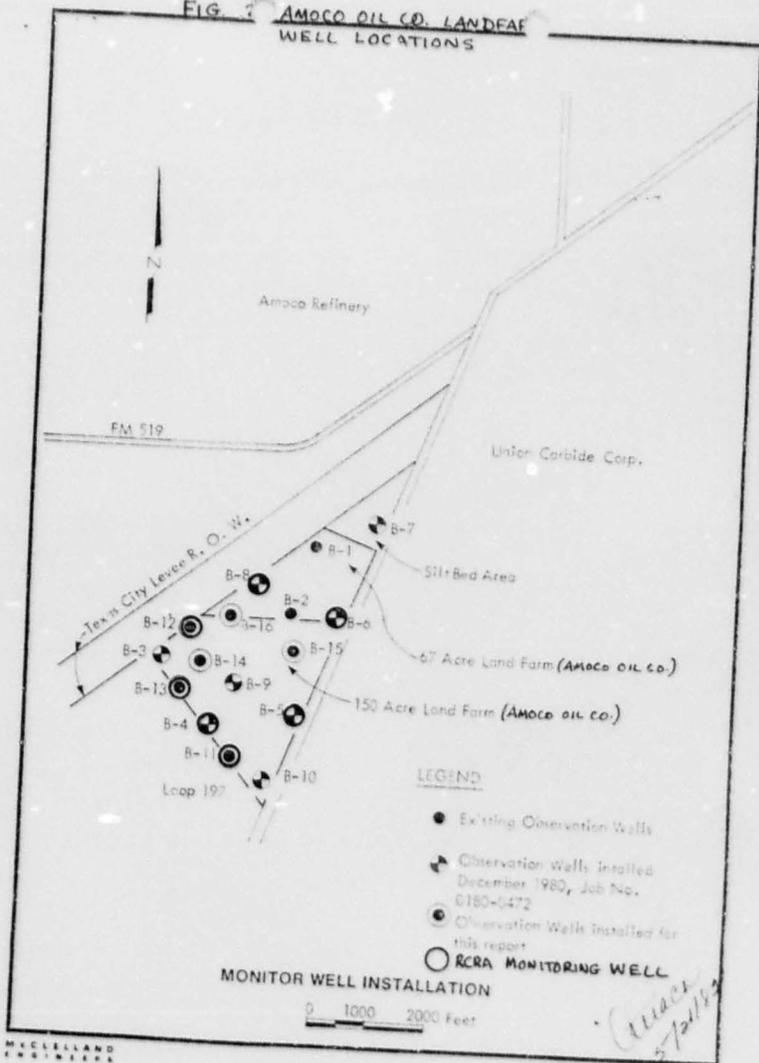
Jerry W. Bright
Manager,
Analytical Laboratory

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*ALLIUM
5/21/82*

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FIG. 1 AMOCO OIL CO. LANDFARM WELL LOCATIONS



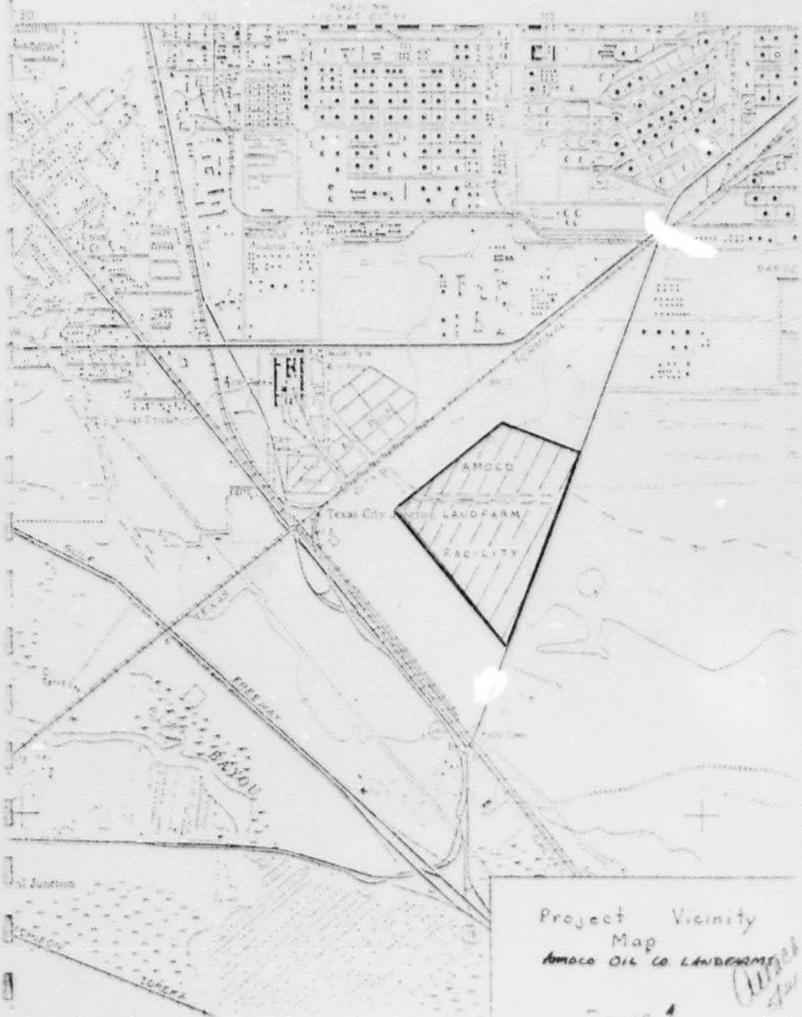
McLELLAND
ENGINEERS

PLATE I

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UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS



Project Vicinity
Map
Amoco Oil Co. Landfarm Facility
[Handwritten Signature]
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Amoco Refinery
Tx 2356

I.D. - FOR OFFICIAL USE ONLY	
W	TX 2356

IX. DESCRIPTION OF HAZARDOUS WASTES (continued from front)

A. HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES. Enter the four-digit number from 40 CFR Part 261.31 for each listed hazardous waste from non-specific sources your installation handles. Use additional sheets if necessary.

1 F 0 0 1	2 F 0 0 2	3 F 0 0 3	4 F 0 0 5	5	6
7	8	9	10	11	12

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four-digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

13 E 0 4 8	14 K 0 4 9	15 K 0 5 0	16 K 0 5 1	17 K 0 5 2	18
19	20	21	22	23	24
25	26	27	28	29	30

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four-digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31 P 1 1 0	32 P 1 2 0	33 U 0 0 2	34 U 0 1 3	35 U 0 1 9	36 U 1 3 5
37 U 1 5 1	38 U 1 5 4	39 U 1 5 9	40 U 1 6 0	41 U 1 6 1	42 U 2 1 1
43 U 2 2 0	44 U 2 2 6	45 U 2 3 8	46 U 2 3 9	47	48

D. LISTED INFECTIOUS WASTES. Enter the four-digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54
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E. CHARACTERISTICS OF NON-LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non-listed hazardous wastes your installation handles. (See 40 CFR Parts 261.21 - 261.24.)

1. IGNITABLE (D001) 2. CORROSIVE (D002) 3. REACTIVE (D003) 4. TOXIC (D004)

X CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE <i>L. V. Durland</i>	NAME & OFFICIAL TITLE (type or print) L. V. Durland Refinery Manager	DATE SIGNED 3-15-80
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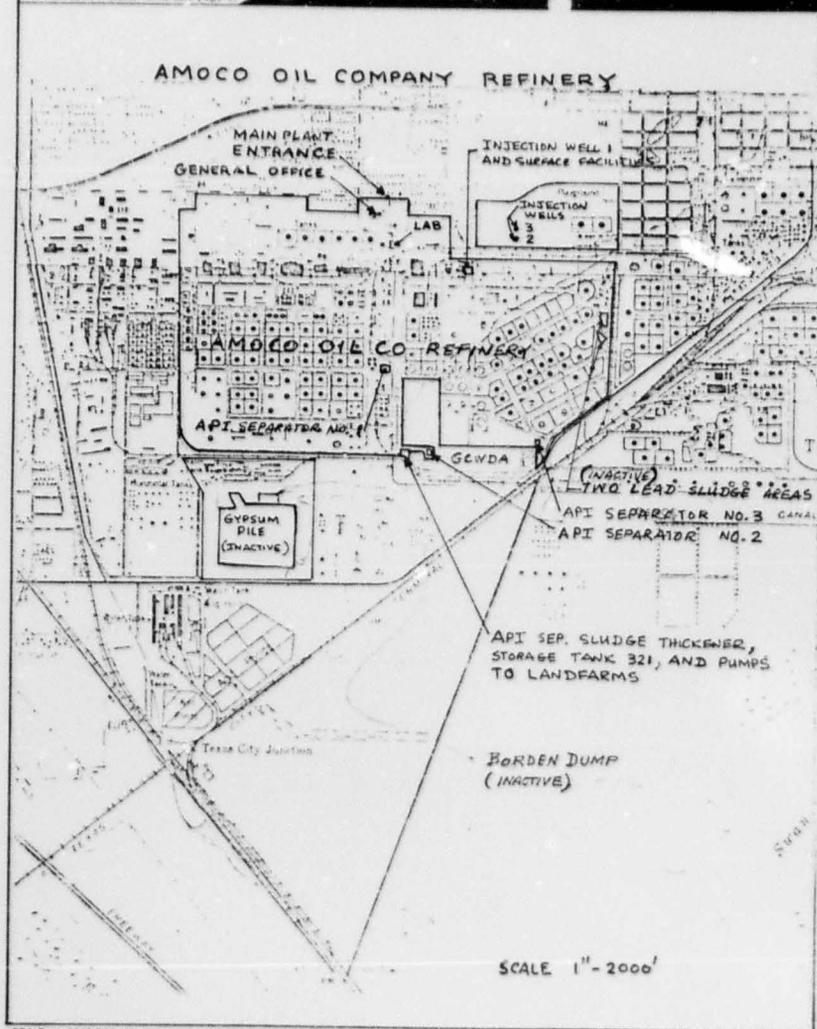
EPA Form 8700-12 (6-80) REVERSE

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Form Approved OMB No. 158-58004

V. FACILITY DRAWING (see page 4)



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LEAD SLUDGE (INACTIVE)
LANDSPREADING AREAS

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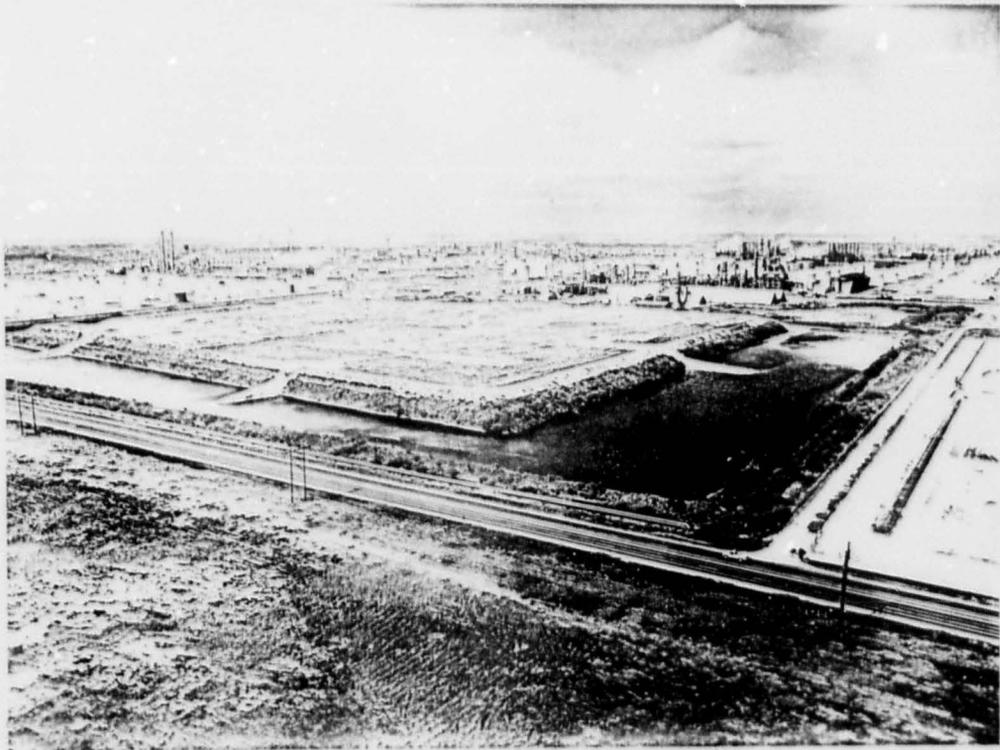
ABANDONED FERTILIZER PLANT & GYPSUM PILE (PREVIOUS OWNER)

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GYPSUM PILE (INACTIVE)

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